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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,142	03/23/2004	Kazuo Shirota	0171-1075PUS1	1976
2292 7590 10/03/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER DEHGHAN, QUEENIE S	
			ART UNIT 1731	PAPER NUMBER
			NOTIFICATION DATE 10/03/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/806,142

Applicant(s)

SHIROTA ET AL.

Examiner

Queenie Dehghan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9 and 13-23 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 20, 2007 has been entered.

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 14-16 and 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komine et al. (6,374,639) in view of Kamiya (English machine translation of JP 05-009035). Regarding claims 14 and 18-21, Komine et al discloses a burner used in manufacturing quartz glass comprising a multi-tube assembly consisting of a center tube connected to SiF₄, a first outer tube connected to O₂, and a second outer tube connected to H₂, and a first tubular shell connected to H₂ and surrounding the multi-tube assembly, and a plurality of first nozzles connected to O₂ and disposed within the first tubular shell (figure 1, col. 6 lines 7-53). However, Komine et al fail to disclose a second tubular shell with respective nozzles. Kamiya teaches a burner for use in producing quartz glass comprising a multi-tube assembly, a first tubular shell with

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a plurality of first nozzles and surrounding the multi-tube assembly, and a second tubular shell with a plurality of second within and surrounding the first tubular shell, wherein both tubular shells are connected to H₂ and all the nozzles are connected to O₂ (figure 1, abstract, [0010]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the second tubular shell with the second nozzles, as disclosed by Kamiya, in the apparatus of Komine et al. in order to increase the efficiency of the deposition of the soot particles as the soot preform grows in size, as taught by Kamiya.

3. Regarding claims 15-16 and 22-23, Komine et al. teach of a burner used for silica glass comprising of nozzles within an annular space (figure 1), wherein the nozzles account for 8% to 13% of the cross sectional area of the annular space between a multi-tube assembly and a tubular shell (col. 6 lines 24-53).

$$(t_0/2)+t_1+t_2 = 2.25\text{mm}+1.0\text{mm}+1.0\text{mm} = 4.25\text{mm} = \text{radius of multi-tube}$$

$$t_3+t_2+t_1+(t_0/2)=45\text{mm}+4.25\text{mm} = 49.25\text{mm} = \text{radius of tubular shell}$$

$$\text{area of annular ring} = 7563.38\text{mm}^2$$

$$\text{area of one nozzle} = 28.27\text{mm}^2$$

$$\text{area of the nozzles} = 22 \times 28.27\text{mm} = 621.94\text{mm}^2$$

$$\text{percent} = 621.94/7563.38 = 8.22\%$$

It would have been obvious to one ordinary skill in the art at the time of the invention to apply a similar cross sectional area of the nozzles in the annular space between the first and second tubular shells, in order for the hydrogen and oxygen gases to react more uniformly, as suggested by Komine.

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4. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Komine et al. (6,374,639) in view of Kamiya (English machine translation of JP 05-009035), as applied to claim 14 above, in further view of Roba et al. (2004/0112092). Komine and Kamiya fail to disclose a tubular jacket around the main burner. Roba et al. teach a tubular jacket disposed outside the main burner to surround an end portion of the burner (item 208 in figure 1, [0054]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the tubular jacket of Roba et al. in the apparatus of Komine and Kamiya in order to confine the flame, as taught by Roba et al.

Response to Arguments

5. Applicant's arguments with respect to claim 14 have been considered but are moot in view of the new ground(s) of rejection. Furthermore, the applicant argues that the multi-tube assembly *consists of* just three tubes. Kamiya discloses a burner that *comprises* a multi-tube assembly (the first three tubes is considered the multi-tube assembly), another two tubes, and tubular shells. That is, the main burner comprises a multi-tube assembly, wherein, the multi-tube assembly does consist of 3 tubes.

6. The applicant argues that Komine does not disclose a second tubular shell and second nozzles and therefore cannot teach the recited cross-sectional area. The examiner disagrees. Komine clearly teaches the recited cross-sectional area in the annular space of a tubular shell containing nozzles within. This teaching can be applied any tubular shell with nozzles within for the reasons provided above. Therefore, it would be applicable to utilize this recited cross-sectional area for the second tubular shell as

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well, since it is of the same structure and function as that of the first tubular shell, that is a tubular shell expelling H_2 in the annular space and containing nozzles expelling O_2 .

7. The applicant argues that combination of the prior art of Komine and Kamiya, specifically that Kamiya is directed to a manufacture approach of soot based material for optical fibers, and that Komine is directed to the removal of chlorine from silica glass. It is clear that both references are directed to an apparatus for production of silica glass and therefore are combinable. Emphasis on the product made or even the method steps employed would bear more weight if method claims or product claims were in question.

8. In regards to the prior art of Roba, the applicant argues that Roba does not teach first and second nozzles. Roba was not used to teach first and second nozzles, but instead that a burner with a tubular jacket.

Conclusion

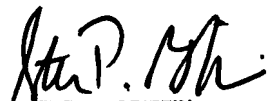
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Queenie Dehghan whose telephone number is (571)272-8209. The examiner can normally be reached on Monday through Friday 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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